DECORIBATULA GEN. NOV. FROM SINGAPORE, WITH NOTES ON ALLIED *RETICULOPPIA* (ACARIDA: CRYPTOSTIGMATA: ORIBATULIDAE) FROM TROPICAL AUSTRALIA.

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Summary

LEE, D. C. & BIRCHBY, C.M. (1989) *Decoribatula* gen. nov. from Singapore, with notes on allied *Reticuloppia* (Acarida: Cryptostigmata: Oribatulidae) from tropical Australia. *Trans. R. Soc. S. Aust.* **113** (2), 1–5, 31 May, 1989.

Decoribatula pustulata gen. nov., sp. nov. on an orchid from Singapore, intercepted at Adelaide Airport, is described. It is similar to *Reticuloppia reticulata* Balogh & Mahunka, 1966 from rainforest litter in Queensland, the description of which is extended. Both mites are unusual in having a deficient chaetotaxy on femora I and II.

KEY WORDS: Acarida, Oribatulidae, *Decoribatula pustulata*, new genus, new species, *Reticuloppia reticulata* Balogh & Mahunka, Singapore, Queensland, leg chaetotaxy.

Introduction

The mites considered here have been studied because of their relevance to an ongoing study of sarcoptiform mites of South Australian soils, sampled from nine florally diverse sites. An introduction to relevant work on the advanced oribate mites (Planofissurae), with comments on the Oripodoidea, which include the Oribatulidae, is provided by Lee (1987). These mites and a group of seven species of *Oribatula*-like mites from the South Australian study are atypical within the Oripodoidea in that they have a deficient chaetotaxy on femora I and II. Oripodoid leg chaetotaxy will be discussed more fully when the South Australian species are described (Lee & Birchby in preparation). The chaetotaxy for femur I and II on oripodoid mites is 0 anterior; 2 dorsal/2 ventral, 1 posterior setae (0,2/2,1). In the deficient chaetotaxy one or two setae are missing, resulting in one of three chaetotaxies as follows: 0,2/2,0; 0,2/1,0; 0,2/1,1. The *Oribatula*-like S. Aust. mites differ superficially in having only short or medium length hysteronotal setae and they were collected from only the arid, semiarid or mallee sites; whilst the two species considered here have long hysteronotal setae and are from moist, tropical sites.

The notation and methods of measurements follow Lee (1981) with modifications made by Lee (1987). Measurements are in micrometers (μm). The type of the new species is deposited in the South Australian Museum, Adelaide (SAMA) whilst the type of *Reticuloppia reticulata* is deposited in to the Hungarian National Museum, Budapest.

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Reticuloppia Balogh & Mahunka

Reticuloppia Balogh & Mahunka, 1966: p. 564

Type-species: *Reticuloppia reticulata* Balogh & Mahunka, 1966.

Diagnosis: Oribatulinae. Hysteronotum with 14 pairs (5*J*, 6*Z*, 3*S*) of long setae. Lamella absent. Hysteronotal lenticulus present near dorsosejugal furrow. Integument of hysteronotum with extensive reticulate sculpturing and cerotegument forming a thick, columnar refractile exudate. Femora I and II with deficient chaetotaxy, lacking posterior setae: I – 0,2/2,0; II – 0,2/1,0. Legs slim and long, with leg IV longest (leg III is lost). Pretarsal claws short (central claw II less than 0.33 x length of tarsus II) and lateral claws much slimmer than central claw (depth less than 0.5 x depth of central claw II).

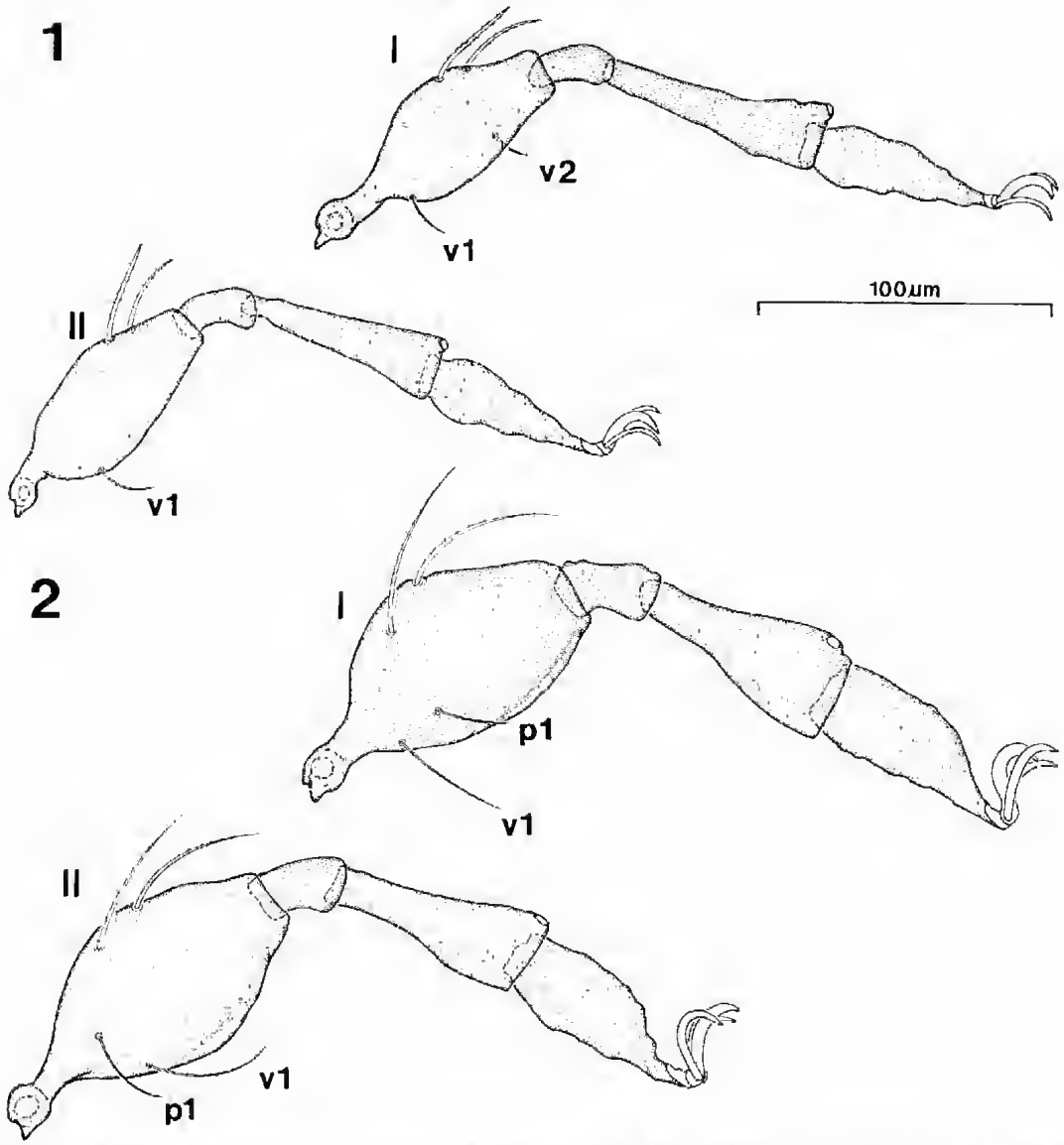
Remarks: *Reticuloppia* is based on a single female, grouped in the Oribatulinae, and distinguished by the hysteronotum having a large number of long setae and reticulate sculpturing around a lenticulus (Balogh & Balogh 1984). In addition, the proteronotum lacks ridges, having only a weak sublamella, and the leg chaetotaxy is deficient in a way that is unique amongst established oripodoid species.

Reticuloppia reticulata Balogh & Mahunka

FIG. 1

Reticuloppia reticulata Balogh & Mahunka, 1966: p. 564.

Female: Idiosomal length, 475 (470 in original description). Leg lengths (femur-tarsus): I – 270, II – 254, III – ?, IV – 311. Tibial maximum heights: I – 25.5, II – 20.5, III – ?, IV – 18. Yellow brown colour. Thick (Maximum depth equal to distance between setae *z1–z2*), whitish, columnar refractile



Figs 1–2: Posterior aspects of femur-pretarsus of right legs I and II, all setae on femora illustrated, *p* = posterior, *v* = ventral. 1, *Reticuloppia reticulata* Balogh & Mahunka. 2, *Decoribatula pustulata* sp. nov.

cerotegument on proteronotum anterior to *j*2, thickest lateral to seta *z*1; also covering hysteronotum except around lenticulus and near pleural margins, with thick patches posterolateral to seta *S*1, lateral to *S*5 and between setae *J*6–*J*6.

Proteronotum with faint costate sublamella. Sensory seta (*z*2) with long stalk (length = x 3 caput). Margin of bothridium raised into turret-like structure, height subequal to length of *z*2 caput. Seta *s*2 short (0.5 x or less distance between setae *j*2–*z*1), fine, smooth, without cilia. Hysteronotum with fine reticulate sculpturing under columnar exudate. Five multiporose foramina, foramen *F*3 divided in *F*3*a* and *F*3*b*. Hysteronotal seta *S*I confirmed similar to and nearly as long as *Z*I. Podosternal chaetotaxy: 3*I*, 1*II*, 3*III*, 3*IV*, with all third rank setae as long as *III*3 (illustrated in the wrong position by Balogh & Mahunka 1966, fig. 15) and *I*3 on pedotectum I, *III*3 posterior to pedotectum II (as for *Decoribatula pustulosa* sp. nov., Fig.4), *IV*3 on discidium. Seta *Sa*I shorter than *Sa*2 and *Sa*3. Opisthosternum with foveolate sculpturing. Four subcylindrical eggs, exochorion smooth, 80 x 230 (mean). Legs long (mean femur-tarsus: 59% of soma) and slim (mean maximum tibial height: 27% of mean length).

Material examined: Holotype female, rainforest litter, Mt Spec (18°57'S, 146°11'E), Townsville, Qld,

19.iii.1965, J. Balogh. Some appendages lost, no femur-tarsus III on either side.

Remarks: The further description here of *Reticuloppia reticulata* adds to or corrects the original description, with a few important confirmations. Reference to the relative dimensions of the legs is distorted by legs III being lost (usually a short, slim leg amongst the oripodoids).

Decoribatula gen. nov.

Type-species: Decoribatula pustulata sp. nov.

Diagnosis: Oribatulinae. Hysteronotum with 14 pairs (*5J, 6Z, 3S*) of mainly long setae (*S1* is short). Lamella with only costate anterior part present, not reaching bothridium to seta *z2*. Smooth, paler mid-dorsal anterior area on hysteronotum, but not clearly delineated as lenticulus. Integument of hysteronotum with extensive foveolate sculpturing, cerotegument inconspicuous. Femora I and II with deficient chaetotaxy, but with posterior setae: I – 0,2/1,1; II – 0,2/1,1. Legs of medium girth and long, with leg IV longest. Pretarsal claws long (central claw II more than 0.33 × length of tarsus II) and lateral claws only slightly slimmer than central claw (depth more than 0.5 x depth of central claw II).

Remarks: Decoribatula is based on a single male. It is similar to *Reticuloppia* in having a deficient femoral chaetotaxy, long hysteronotal setae, a divided anterior hysteronotal foramen (*F3a, F3b*) and a turret-like bothridium to *z2*. It particularly differs, in having a lamella, a different type of cerotegument, a different type of setal loss on femora I and II and unusually large pretarsal claws. On the basis of this it is considered to be a sister-group to *Reticuloppia* but different enough to be regarded as a separate genus.

Decoribatula pustulata sp. nov.

FIGS 2–4

Male: Idiosomal length, 527. Leg lengths (femur-tarsus): I – 298, II – 280, III – 285, IV – 323. Tibial maximum heights: I – 36, II – 31, III – 23, IV – 23. Red brown colour. Inconspicuous (depth less than diameter of hysteronotal setal bases) cerotegument, concentrated in round or oval pustules on hysteronotum.

Proteronotum with partial costate lamella, superficially inconspicuous but backed by retractile internal apodeme, not reaching back to turret-like bothridium to seta *s2*. Two multiporose foramina (*F1, F2d*) recognisable dorsally. Central setae (*j1, j2, z1*) with 3 or 4 files of cilia, *j2* longest. Sensory seta (*z2*) with caput and exposed stalk subequal in length. Seta *s2* short (0.6 x or less distance *j2–z1*), fine, smooth, without cilia.

Hysteronotum with smooth central triangulate area from anterior margin to level with seta *J3*, but no clearly delineated pale lenticulus. Five multiporose foramina (*F3a, F3b, F4*, F5, F6) each backed by a disc-shaped chamber in integument. Hysteronotal setae smooth, *S1* short, subequal to *s2*, whilst *J5* and *S5* very long with whip-like end.

Podosternum with reticulate sculpturing. Subpodal ridge in three parts, pedotectum II and discidium large, extending laterally beyond level of pedotectum I. Lateral setae (especially *III3*) longer than central setae. Opisthosternum with three setae (*JZg4, JZg5, Sg*) represented only by bases on both sides and assumed broken off. Seta *Sa1* longer than *Sa2* and *Sa3*. Shield dark, centrally horizontal and punctate with curving upwards, smooth marginal strip.

Legs long (mean femur-tarsus: 56% of soma), with leg I second longest, and of medium-girth (mean maximum tibial height: 35% of mean length). Ventral flange on trochantera III and IV. Femora with ventral incrustation.

Material examined: Holotype male (SAMA N1988474), on orchid from Singapore, intercepted at Adelaide International Airport, 13.iv. 1987, Greg Baker (S. Aust. Department of Agriculture).

Remarks: The male of *D. pustulata* is described, although oripodoid species are usually based on females, because it is unlikely that more material will be collected and this species is important to the classification of S. Aust. mites being studied (Lee & Birchby in preparation). There is a lack of sexual dimorphism amongst oripodoid character states that are considered important in distinguishing species. The female is likely to be bigger and have the thickening around the genital orifice separated from the ventrosejugal apodeme. Its relationships are considered under the remarks on *Decoribatula*.

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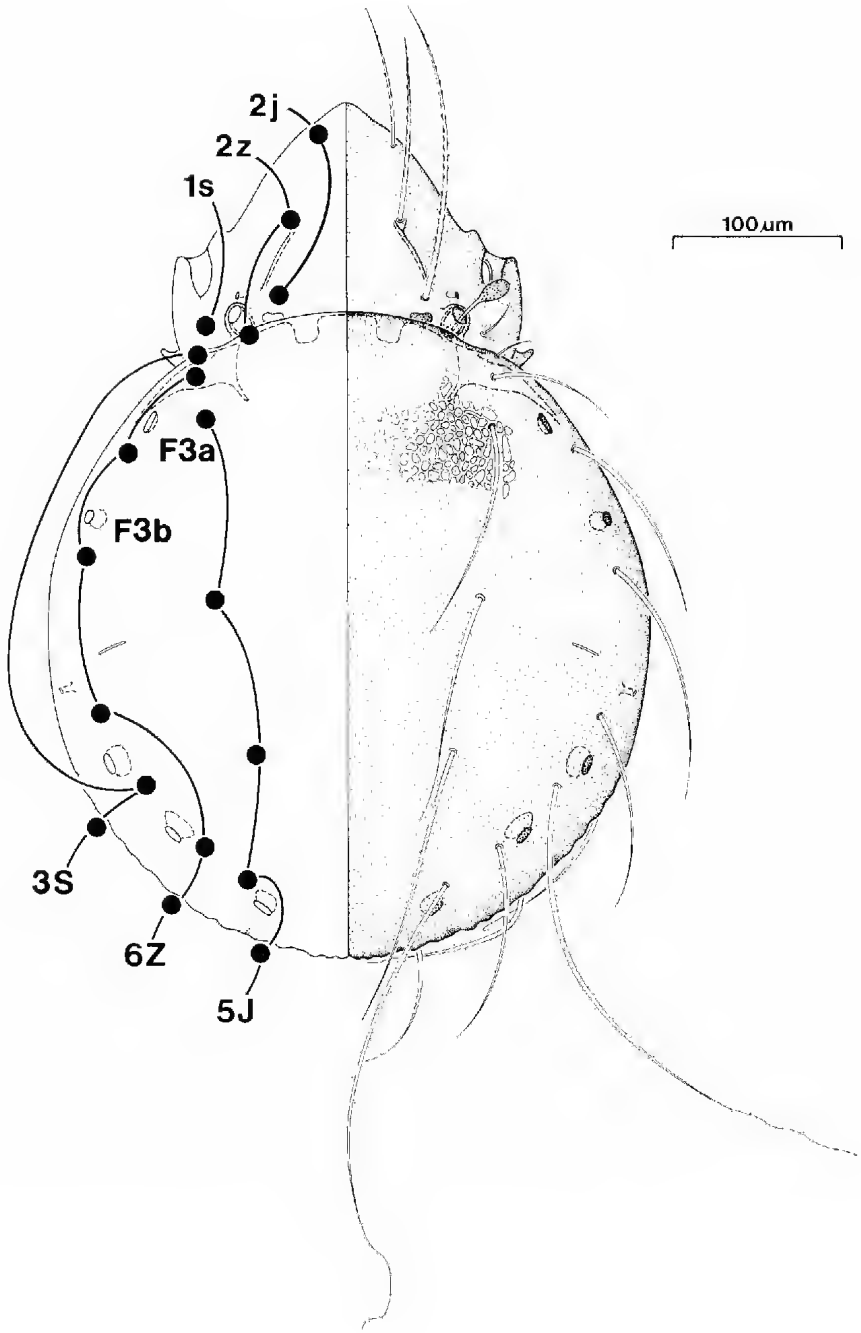

Fig. 3: *Decoribatula pustulata* sp. nov., notum of soma.

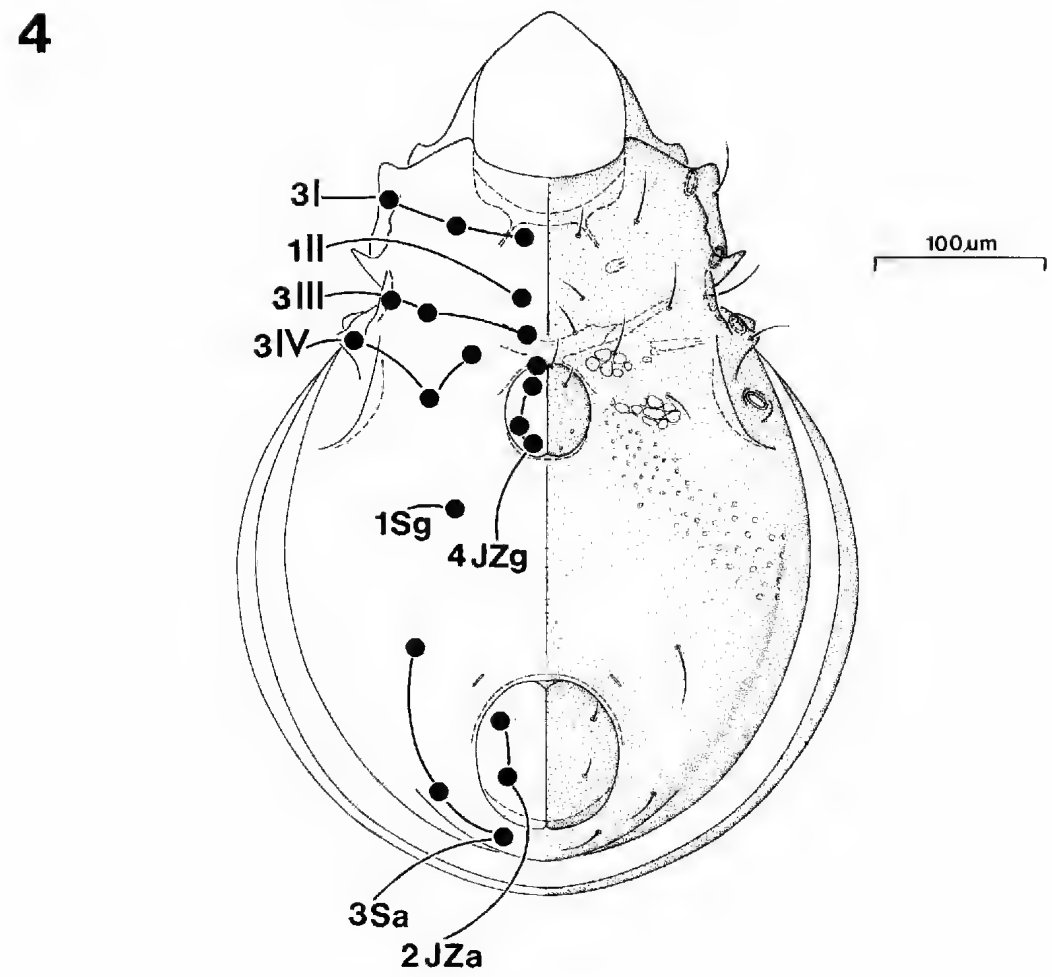

Fig. 4: *Decoribatula pustulata* sp. nov, sternum of soma.

References

BALOGH, J. & BALOGH, P. (1984) Review of the Oribatuloidea Thor, 1929 (Acari: Oribatei). *Acta zool. hung.* **30**, 257–313.

_____ & MAHUNKA, S. (1966) New Oribatids (Acari) from Australian Soils. *Folia ent. hung.* **33**, 553–568.

LEE, D. C. (1981) Sarcoptiformes (Acari) of South Australian soils. 1. Notation. 2. Bifemorata and Ptyctima (Cryptostigmata). *Rec. S. Aust. Mus.* **18**, 199–222.

_____ (1987) Introductory study of advanced oribate mites (Acarida: Cryptostigmata: Planofissurae) and a redescription of the only valid species of *Constrictobates* (Oripodoidea). *Ibid.* **21**, 35–42.